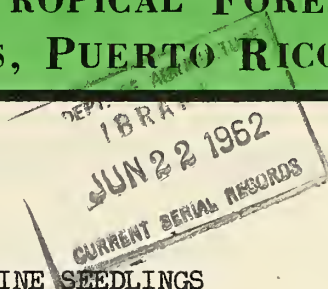


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TROPICAL FOREST NOTES

INSTITUTE OF TROPICAL FORESTRY
RIO PIEDRAS, PUERTO RICO



No. 10

EARLY LIFTING OF PINE SEEDLINGS

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As noted previously^{1/} the production and planting of pine seedlings in the tropics is expensive because of the necessity of using potted rather than bare-rooted seedlings.

Present costs of producing planting stock can be reduced somewhat if the seedlings can be grown in beds and transplanted to pots only a few weeks before planting time. Costs could, of course, be reduced even more if barerooted seedlings could be used. Neither of these procedures, however, is economic unless survival and growth of the seedlings is adequate.

Three techniques were tested using seedlings of Pinus hondurensis Loock (Pinus caribaea Morelet):

1. Bareroot. Seedlings were lifted carefully the day before outplanting, with little or no attached soil. They were bundled in moist sphagnum moss immediately, and in no case were the roots left exposed to the air for more than 120 seconds.
2. Potted late. Approximately six weeks before outplanting seedlings were lifted from the nursery bed and potted in sphagnum moss in polyethylene bags. The seedlings were kept under shade the first week following potting then moved into full sunlight. They were watered daily, and the failures were, of course, culled before outplanting.
3. Potted early. Seedlings were transplanted to polyethylene bags filled with a light soil three weeks after germination, and maintained in individual bags until time of outplanting, approximately 10 months. All seedlings used were part of the same seed lot. They were about 11 months from seed, of good vigor and color, averaged 1.3 feet tall, and many were actively growing at the time of outplanting. They were planted in plots of five seedlings in blocks of 3 plots. Plots were randomized in each block.

Planting was done in September 1960 in a clay loam soil, at approximately 100 feet elevation, in full sunlight. Rainfall was erratic during the following

^{1/} Briscoe, C. B. 1960. Lifting pine seedlings. Tropical Forest Note 3, Institute of Tropical Forestry. 2 pp.

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three months, and mortality was appreciable even before the dry season, Table I.

Table I. Survival and early growth

Treatment	Survival Percentage		Height Growth, feet 1961
	January 1961	January 1962	
Barerooted	18	15	0.4
Potted late	88	75	1.0
Potted early	98	93	1.0

Both the treatments using potted seedlings were superior in survival and height growth to the barerooted seedlings. Seedlings potted only six weeks before outplanting grew as rapidly as those potted shortly after germination but survival was lower, highly significantly so.

Summarizing, pine seedlings potted shortly after germination had a higher survival in the field than seedlings potted only six weeks before outplanting. Both groups of potted seedlings grew equally well during the first year in the field and exceeded the barerooted seedlings in both survival and height growth. On this harsh site planting of barerooted seedlings is obviously not economic. Comparisons between seedlings potted just after germination with seedlings potted shortly before outplanting must be made on the basis of nursery and planting costs.

February 13, 1962